What is claimed is:

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CLAIMS

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1. A telecommunications apparatus comprising:

   a plurality of telecommunications physical layer interfaces,

   one or more telecommunications higher-layer processors, and

   a digital cross-connect connected to route telecommunications traffic among the physical layer interfaces and the one or more higher-layer processors.

2. The apparatus of claim 1 wherein at least one of the physical layer interfaces is a SONET physical layer interface.

3. Th apparatus of claim 1 wherein a higher layer processor is an asynchronous transfer mode (ATM) processor.

4. The apparatus of claim 1 wherein a higher layer processor is an internet protocol (IP) processor.

5. The apparatus of claim 2 wherein the digital cross-connect is configured to provide 1:1 automatic protection switching for communications traffic from at least one of the physical layer interfaces to one or more higher-layer interfaces.

6. The apparatus of claim 2 wherein the digital cross-connect is configured to provide 1:N automatic protection switching for communications traffic from at least one of the physical layer interfaces to one or more higher-layer interfaces.

7. The apparatus of claim 2 wherein the digital cross-connect is configured to provide 1:1 automatic protection switching for communications traffic to at least one of the physical layer interfaces from one or more higher-layer interfaces.

8. The apparatus of claim 2 wherein the digital cross-connect is configured to provide N:1 automatic protection switching for communications traffic to at least one of the physical layer interfaces from one or more higher-layer interfaces.

9. A packet-switching system comprising:

    one or more telecommunications apparatuses, each apparatus including:

    a plurality of telecommunications physical layer interfaces,

    one or more telecommunications higher-layer processors, and

    a digital cross-connect connected to route telecommunications traffic among the physical layer interfaces and the one or more higher-layer processors,

    and

    a packet switch fabric connected to switch telecommunications traffic received at one or more of the physical layer interfaces to one or more of the physical layer interfaces.

10. The system of claim 9 wherein at least one of the physical layer interfaces is a SONET physical layer interface.

11. The system of claim 9 wherein a higher layer processor is an asynchronous transfer mode (ATM) processor.

12. The system of claim 9 wherein a higher layer processor is an internet protocol (IP) processor.

13. The system of claim 10 wherein the digital cross-connect is configured to provide 1:1 automatic protection switching for communications traffic from at least one of the physical layer interfaces to one or more higher-layer interfaces.

14. The system of claim 10 wherein the digital cross-connect is configured to provide 1:N automatic protection switching for communications traffic from at least one of the physical layer interfaces to one or more higher-layer interfaces.

15. The system of claim 10 wherein the digital cross-connect is configured to provide 1:1 automatic protection switching for communications traffic to at least one of the physical layer interfaces from one or more higher-layer interfaces.

16. The system of claim 10 wherein the digital cross-connect is configured to provide N:1 automatic protection switching for communications traffic to at least one of the physical layer interfaces from one or more higher-layer interfaces.

17. A method of switching telecommunications traffic comprising the steps of:
    (A) receiving telecommunications traffic at a telecommunications physical interface;
    (B) routing the received telecommunications traffic from the physical interface to a digital cross-connect; and
    (C) routing the telecommunications traffic through the cross-connect to a telecommunications higher-layer processor.

18. The method of claim 17 further comprising the step of:
    (D) routing the telecommunications from the higher-layer processor through a packet switch fabric to a higher-layer processor;
    (E) routing the telecommunications from the higher layer processor to a digital cross-connect; and

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(F) routing the telecommunications from the higher layer processor to a telecommunications physical interface.

19. The method of claim 17 wherein the step (A) of receiving telecommunications traffic further comprises the step of:

(A1) receiving telecommunications at a SONET physical layer interface.

20. The method of claim 17 wherein the step (C) of routing the telecommunications traffic further comprises the step of:

(C1) routing the telecommunications traffic to an asynchronous transfer mode (ATM) processor.

21. The method of claim 17 wherein the step (C) of routing the telecommunications traffic further comprises the step of:

(C2) routing the telecommunications traffic to an internet protocol (IP) processor.

22. The method of claim 17 wherein the step (C) of routing the telecommunications traffic further comprises the step of:

(C3) providing 1:1 automatic protection switching for communications traffic from at least one of the physical layer interfaces to one or more higher-layer interfaces.

23. The method of claim 17 wherein the step (C) of routing the telecommunications traffic further comprises the step of:

(C4) providing 1:N automatic protection switching for communications traffic from at least one of the physical layer interfaces to one or more higher-layer interfaces.

24. The method of claim 18 wherein the step (E) of routing the telecommunications traffic further comprises the step of:

(E1) providing 1:1 automatic protection switching for communications traffic to at least one of the physical layer interfaces from one or more higher-layer interfaces.

25. The method of claim 18 wherein the step (E) of routing the telecommunications traffic further comprises the step of:

(E2) providing N:1 automatic protection switching for communications traffic to at least one of the physical layer interfaces from one or more higher-layer interfaces..